

SECTION 01575 - TEMPORARY CONTROLS - AIR QUALITY REQUIREMENTS

SPECIFIER S NOTE: *Insert wording, numbers, etc. as appropriate where [italics in parenthesis] are shown throughout this specification section. Italicized words are used for directions to the specifier and should be filled in. Blue colored text are Notes to Specifier and should be completely deleted from the final text. Red colored text is used for items to be modified. Maintain footer notation in italics with the current version used (e.g. TG01575 v00.04).*

SPECIFIER S NOTE: *Include this section in all projects that have the possibility of creating odors, dusts, or other materials that can be spread in the air and cause complaints during the construction.*

SPECIFIER S NOTE: *Equipment refers to odor producing equipment such as tar pots, etc. Materials would refer to paints, sealants, adhesives, etc.*

PART 1 - GENERAL

1.01 SUMMARY OF WORK

- A. This section describes the steps that the Contractor shall perform to control odors or dusts generated by the equipment, materials, or actions of the construction process that may affect the quality of air to non-contractor personnel.

SPECIFIER S NOTE: *Be sure to reference this section in all applicable technical sections for your project, including but not limited to: **DIVISION 6-Wood and Plastics, DIVISION 7-Thermal and Moisture Protection, DIVISION 8-Doors and Windows, DIVISION 9-Finishes, DIVISION 11-Equipment, DIVISION 12-Furnishings, DIVISION 15-Mechanical***

1.02 RELATED SECTIONS

- A. *[Related requirement specified elsewhere]*

1.03 REFERENCES

- A. Indoor Air Quality published by the Sheetmetal and Air Conditioning Contractor's National Association (SMACNA).
- B. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) standards as follows: 62-1989; 55-1981; 52-76; and 1-1989
- C. Indoor Air Quality in Public Buildings , Volumes I and II, by Sheldon L, Handy RW, Hartwell TD, et al.; 1988 (Public Access Buildings Study)

1.04 DEFINITIONS

- A. A/C (Air Cond.) means any or all of the equipment used to air condition a building or space.
- B. Air changes per hour shall mean a number calculated by the maximum work area length in feet times the maximum work area width in feet times the maximum work area height in feet divided by 60 times the cubic feet per minute of air movement $(L \times W \times H)/(60 \times CFM)$.
- C. Odor means something that can be detected by a person's sense of smell whether objectionable or not to the person.

- D. Perceivable means able to attain an awareness solely through the use of the human senses such as smell, sight, hearing, etc.
- E. VOC means volatile organic compound, a compound containing a chemical constituent with a boiling point of less than 100 Deg C (volatile) and that contains carbon (organic).
- F. VOC emission rate" means the total amount of hydrocarbons emitted per area and unit of time as determined from the product and test method data supplied by the manufacturer or from data in the EPA Public Access Buildings Study, 1988.

SPECIFIER S NOTE: Specify non-volatile materials using other than generic identification. Keep adequate documentation to support the use of volatile materials when specified or left to the discretion of the contractor.

1.05 SUBMITTALS

- A. Submit a certification, which may be a copy of the product label or Material Safety Data Sheets (MSDS), of the VOC emission rate for all VOC containing products. (Note: MSDS sheets and labels are acceptable only if the VOC data is available and highlighted.)

PART 2 - MATERIALS

SPECIFIER S NOTE: Technical Memo #85 has restricted the use of particle board for cabinet doors, countertops, and partitions.

2.01 MATERIAL RESTRICTIONS

- A. If used, materials that exceed the standards established by the National Particleboard Association (NPA) Standard for Formaldehyde Emission for Particleboard (NPA 6-84) shall only be used in conformance with the requirements of Section 3.01. All materials that use particleboard for any part of their construction shall be considered to exceed NPA 6-84 standard unless clearly labeled with an NPA certification that the standard is met.
- C. Materials that exceed a VOC emission rate of 100 $\mu\text{g}/\text{m}^2\text{h}$ shall only be used in conformance with the requirements of Section 3.01.
- D. Materials that do not have a submitted VOC emission rate shall be considered to exceed 100 $\mu\text{g}/\text{m}^2\text{h}$.
- E. If **ALL** of the project's materials comply with the above restrictions, the requirements of Part 3 - Execution are not required.

2.02 OTHER MATERIALS

- A. Provide the temporary equipment such as fans, blowers, etc. and / or products such as tape, ducts, temporary wall materials, etc. necessary to complete the requirements of this section.

PART 3 - EXECUTION

TEMPORARY CONTROLS -AIR QUALITY REQUIREMENTS

SPECIFIER S NOTE: These paragraphs define extra work and extra contract time that will be required when products specified or left to the discretion of the contractor in other sections emit VOCs at unknown rates or greater than 100 µg/m²h.

3.01 GENERAL REQUIREMENTS

- A. Keep a copy of the certifications submitted under Sec. 1.06 readily available in an easy to modify format, such as a three ring binder, at the job site.
- B. Insure the all work areas are isolated from those areas in which persons not employed by the contractor will be present during construction, including those interconnected by air conditioning systems, adjacent buildings, and public areas.

SPECIFIER S NOTE: Clearly identify air handling equipment that may be modified on the drawings for jobs involving odors or dusts. Also, identify equipment that shall not be modified.

- 1. Install isolation barriers so that odor(s) and dust(s) from the work areas are not perceivable in any surrounding occupied area, then remove the barriers before the final acceptance of the project; or
- 2. Provide local fresh and exhaust air that will be adequate to insure odor(s) and dust(s) from the work areas are not perceivable in any surrounding occupied area. Meet the following minimum criteria:

SPECIFIER S NOTE: Clearly indicate the extent of the Contractor's work area responsibility on the prints.

- a. At least four air changes per hour continued from the start of any emission producing work until four hours after the conclusion of any emission producing work; and
 - b. Exhaust the ventilating air to the outside of the building, at least 25 feet downwind of **any opening** to the building, surrounding buildings, or similar occupied areas, and at least 100 feet downwind of any building air supply intakes.
- C. Immediately stop all odor and dust producing tasks, then execute the requirements of subparagraph 3.01.B.2 within four hours after notification by the Engineer that occupants have complained of any perceivable odor or dust.
- 1. Compliance with paragraph 3.01.B.1 shall not be considered to have provided sufficient isolation in this instance.
 - 2. If the items in paragraph 3.01.B.2 have been previously implemented without satisfactory results, increase the air changes to eight (8) per hour.
 - 3. The requirements in paragraph 3.01.D may be performed in lieu of the requirements stated in 3.01.C with prior permission from the Engineer or shall be performed if requested by the Engineer.
- D. When the conditions described in paragraphs 3.01.B.1, 3.01.B.2, or 3.01.C, are unable to maintain an air quality acceptable to 80% of the surrounding occupants, perform the following at no extra cost to the State:

1. Immediately discontinue the use of the offending product(s) upon notification by the Engineer;
2. Perform the odor or dust generating task(s) during a non-occupied time such as evenings, weekends holidays, etc.;
3. Thoroughly clean any odor or dust affected area and equipment prior to occupancy; and
4. Complete the odor or dust generating task(s) at least 16 hours prior to occupancy.

3.02 VENTILATION AFTER CONSTRUCTION

A. In all **work areas of air conditioned new buildings** the Contractor shall perform a ventilation activity after construction has been completed but prior to occupancy according to the following:

1. Notify the Engineer prior to starting the work involved with these steps or immediately if any step cannot be successfully completed;
2. Perform the normal start up procedures for all ventilation equipment;
3. Inspect areas adjacent to air intakes for the existence of air containing odors and eliminate the cause of any odor(s) before proceeding;
4. Insure that the A/C outside make-up air dampers are operable, then set them to remain in the wide open position to provide for the maximum possible flow of outside air into the building;
5. Set the mechanical cooling equipment such as chill water or A/C compressors as appropriate to off so that the temperature will stay as high as possible;
6. Open windows and doors (interior) for maximum ventilation of the work area using caution regarding security, infiltration of dirt, debris, or dust, and impact on surrounding occupied areas. This requirement shall not relieve the Contractor of his responsibility for security, protection from the elements of weather, or site cleanliness;
7. Turn on all of the available lights and heat producing equipment;
8. Run all of the air handling units and ventilation fans continuously for 72 hours;
9. Be prepared to continue the ventilation procedure beyond the 72 hours and to add additional exhaust fans if the Engineer considers it necessary. Ventilation beyond 72 hours will be compensated as extra work if all of the above steps have been followed; and
10. When the Engineer determines that the ventilation has been sufficient, replace all A/C air filters, readjust the building's equipment to the design settings, and perform the start up steps required to be performed after such adjustments have been made.

- B. In all **work areas of non-air conditioned new buildings** the Contractor shall perform a ventilation activity after construction has been completed but prior to occupancy according to the following:
1. Notify the Engineer prior to starting the work involved with these steps or immediately if any step cannot be successfully completed;
 2. Inspect area adjacent to portable fans for the existence of air containing odors and eliminate the cause of any odor(s) before proceeding;
 3. Open windows and doors (interior and exterior) for maximum ventilation of the work area using caution regarding security, infiltration of dirt, debris, or dust, and impact on surrounding occupied areas. This requirement shall not relieve the Contractor of his responsibility for security, protection from the elements of weather, or site cleanliness;
 4. Turn on all of the available lights and heat producing equipment;
 5. Ventilate the work area using portable supply and exhaust fans capable of providing one complete work area air change per hour for 72 hours;
 6. Be prepared to continue the ventilation procedure beyond the 72 hours and to add additional fans if the Engineer considers it necessary. Ventilation beyond 72 hours will be compensated as extra work if all of the above steps have been followed; and
 7. When the Engineer determines that the ventilation has been sufficient, remove the portable equipment.

SPECIFIER S NOTE: This paragraph may be removed for new facilities that do not have HVAC systems interconnected with existing facilities.

- C. In all **work areas in an existing building** the Contractor shall perform a ventilation activity after construction has been completed but prior to occupancy according to the following:
1. Use the steps in paragraph 3.03.A when the work area is air conditioned by air handling equipment that can be completely isolated from all A/C systems supplying occupied areas; otherwise
 2. Use the steps in paragraph 3.03.B.

END OF SECTION